

Abstract

A vacuum electron device with a photonic bandgap structure that provides the ability to tune the behavior of the device to a particular mode of a plurality of modes of propagation. The photonic bandgap structure comprises a plurality of members, at least one of which is movable, and at least one of which is temperature controlled. The photonic bandgap structure makes possible the selection of one mode of propagation without the necessity to build structures having dimensions comparable to the wavelength of the propagation mode.

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